

A flexible water resistant sheet having a plurality of contiguous concave reservoir basins with through holes disposed upon crests of basin walls separating such basins.

### **REMARKS—General**

The applicant has rewritten all claims to define the invention more particularly and distinctly so as to overcome the technical rejections and define the invention patentably over the prior art.

The applicant has amended the Abstract by placing reference numbers in parenthesis as noted by the examiner under Specification of the DETAILED ACTION.

### **The Claims All Distinguish Over The References Under Sec. 102**

The cited and relied-upon **Steinbronn** patent shows a plurality of contiguous concave reservoir basins (Fig. 1 #10) containing holes (Fig. 2 #9) within crests of basin walls separating such basins and the attachment of filter fabric to the top surface of such basins. Beneath such fabric and emanating from within such basins, is a wicking material (Fig. 1 #4) to draw water contained within such basins. The apparatus is placed against a water impenetrable membrane (Fig. 1 #2) and with the cultivars root structure in contact or within close proximity to the apparatus. Applicant's invention does not include filter fabric, wicking material, nor require placement against a water impenetrable membrane. Applicant's invention is placed beyond immediate contact (below the root zone) of the cultivars; allows water to transfer to the soil beneath it and conversely, allows water to transfer upward through it, thereby it is new and unobvious over Steinbronn.

The cited and relied-upon **Cochran** patent shows a flanged pair of contiguous basins or receptacles (Fig 2 #12) with its flange (Fig 2 #12) to be placed atop or even with the soil surface. Such receptacles receive corresponding insertable, removable and interchangeable basins for soil with plants. Such insertable basins (Fig 2 #35) have drainage holes (Fig 2 #40) at their bottom surfaces to allow excess water to flow into and

to be contained by the receptacles. Applicant's invention does not have holes at the interior bottom surfaces of its basins nor insertable, removable planters. Unlike Cochran's apparatus, applicant's invention has holes atop the crests of the basin walls and is buried beneath the root zone of cultivars, thereby it is new and unobvious over Cochran.

The cited and relied-upon **Paine** patent shows a flat bottom sheet with intermediate supports (Fig.1 # 10 ), a flat top sheet with drain holes allowing water to flow to or from the area of the bottom sheet. The void between such sheets provides for the storage of water irrigated from above or admitted from an input between the sheets. The apparatus supports and comes in direct contact with turf or artificial turf (playfield carpet) in environments where install, removal and interchange of such are desired. Applicant's invention does not have a flat bottom sheet, is not a flat sheet and does not require a membrane beneath it to make it impenetrable to water/liquids. Unlike Paine's apparatus, applicant's invention has holes atop the crests of the basin walls, is of a single sheet, is buried beneath the root zone of cultivars, allows water to transfer to the soil beneath it and conversely, allows water to transfer upward through it, thereby it is new and unobvious over Paine.

**The Claims All Distinguish Over The Other Prior Art Patents Not Relied On Yet  
Made Of Record Under Section 102**

European Patent EP 266701 A2; **Braun** shows a below grade apparatus comprised of contiguous basins with a foam moisture absorbing material. Applicant's invention does not contain a moisture absorbing material.

United Kingdom Patent GB 2048635 A; **Taylor et al.** shows a below grade container comprised of a single concave bowl with a grill placed beneath the root structure of a plant. Applicant's invention does not contain a basin singular in structure and placement.

United Kingdom Patent GB 2199474 A; **Akira Takahashi** shows a below grade irrigation system comprised of a solar exposed warming pool with water from such

channeled into reservoirs beneath cultivars. Such reservoirs are encased in a water impermeable membrane, then filled with a material such as gravel to support a filter fabric containing a water retaining gel. Soil is placed upon such fabric and gel. Applicant's invention does not contain a water retaining gel.

U.S. Patent No. 6,385,903B1; **Diller et al.** shows a tray for above ground growing of seedling plants, comprised of contiguous basins with holes atop the crests of such basins doubling in use for drainage of excess watering and mechanized handling means. Applicant's invention is not for above ground use.

U.S. Patent No. 4,889,758; **Rinkewich, Issac** shows a structural panel for integration in various building and engineering constructions comprised of a molded sheet with independent ridges, domes and basins. Applicant's invention is of a flexible material and is not an accessory for construction means.

U.S. Patent No. 3,528,251; **Falk, David C.** shows a below grade irrigation system comprised of a grid-work of arterial interconnected piping with an input source and outlet discharge. Applicant's invention does not have piping.

U.S. Patent No. 3,443,385; **Vollmer, D. H.** shows a below grade irrigating apparatus comprised of a single basin, an internal compartment containing an internal ball-cock valve to regulate water volume, and an input supply conduit. Applicant's invention does not have an internal compartment or mechanical moving elements.

U.S. Patent No. 3,849,991; **Niederwemmer, Paul** shows a below grade irrigation system utilizing waste water comprised of closed concrete input boxes filled with gravel, and distribution piping emanating from such boxes. Applicant's invention does not incorporate enclosed compartments or piping.

U.S. Patent No. 6,672,016B2; **Jansky, Lawrence M.** shows a panel for water diversion for below grade placement against various constructions, comprised of a sheet formed with basins and ridges. Applicant's invention allows for drainage through such material.

U.S. Patent No. 640,077; **Bagby, Eugene A.** shows a below grade apparatus comprised of a bottom sheet with intermediate supports, an upper layer atop such supports composing a cavity for water storage with such supplied by vertical tubes. Applicant's invention does not include subterranean closed storage cavities or input water source supply conduits.

U.S. Patent No. 6,428,870B1; **Bonhoff, William W.** shows a below grade apparatus comprised of nestable and stacked open cell mats for fluid storage and drainage systems. Applicant's invention does not provide for stacking multiple layers of such material in a nestable manner below grade.

**The Novel Physical Features of The Claims Provide New And Unexpected Results  
And Hence Should Be Considered Unobvious, Making The Claims Patentable under  
Sec. 103**

Applicant submits that the above-recited novel features in the independent claims, and hence in all claims, provides new and unexpected results and hence should be considered unobvious, making the claims patentable under Sec. 103.

**Additional Reason Militate In Favor Of Unobviousness**

The prior art references do not contain any suggestion (express or implied) that they be combined, or that they be combined in the manner suggested by applicant. Applicant has presented a new principal of operation, in particular: The new and unexpected results are the ability of the applicant's system and apparatus to provide for a more consistent level of available moisture in the soil accessible to the root structures of adjacent cultivars; thereby wet to dry to wet variations of moisture extremes are minimized. Such reduction of cycling lowers stress levels in the cultivars; thereby growth rate, crop production and other health benefits to the cultivars are provided.

The means whereby the moisture in the soil is permitted to migrate from top side to bottom side and conversely from the bottom side to the top side (when the moisture content is less than that of the bottom side) of the apparatus via the openings in the crests of basin walls, is essential in the performance of such. This element, not cited or shown in the prior art, is novel over the prior art and the results of such are unexpected and unobvious. Test data documenting moisture level comparisons and cultivar growth benefits cited by applicant are available upon request.

### **Conclusion**

For all the above reasons, applicant submits that the specification and claims are now in proper form, and that the claims all define patentably over the prior art. Therefore I submit that this application is now in condition for allowance, which action I respectfully solicit.

### **Conditional Request For Constructive Assistance**

Applicant has amended the specification and claims of this application so that they are proper, definite, and define novel structure which is also unobvious. If, for any reason the claims of this application are not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP 2173.02 and MPEP 707.07 (j) in order that this application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,

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**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to: Commissioner for Patents, Box Non-Fee Amendments, Washington, DC 20231 on the date below.

Date: December 17, 2004

Inventor's Signature:

A handwritten signature in black ink, appearing to read "Howard M. Hall".